

**BRITISH COLUMBIA
MINISTRY OF FORESTS**

Kamloops Timber Supply Area

In response to a request for a temporary increase

Rationale for Allowable Annual Cut (AAC) Determination

Effective January 1, 2004

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Chief Forester**

Objective of this document

This document provides an accounting of the factors I have considered in my review of the recent request for a temporary increase to the allowable annual cut (AAC) for the Kamloops timber supply area (TSA). The increase has been requested to address abnormal infestations from the mountain pine beetle and devastation from the 2003 wildfires in the Kamloops TSA. For this determination, as chief forester of British Columbia, I have placed extraordinary emphasis on the *Forest Act* section 8 (8) (e), which provides the expectation that in determining an AAC I must consider abnormal infestations in and devastation of, and major salvage programs planned for, timber on the area.

Description of the TSA

The Kamloops TSA is located in the southern interior of BC and includes the Kamloops District and the Clearwater portion of the Headwaters District. The TSA covers approximately 2.14 million hectares (excluding Wells Gray Provincial Park and Tree Farm Licences 35 and 18).

The Kamloops TSA is within the area covered by the *Kamloops Land and Resource Management Plan* and forest development is required to be consistent with aspects of the plan that have *Higher Level Plan* (HLP) direction as provided under the *Forest Practices Code of BC Act*. Harvesting for wildfire salvage or to control the spread of mountain pine beetle will be done within the context of the HLP.

As reported in the *2001 Kamloops Timber Supply Area Analysis Report*, the economy of the Kamloops TSA is well diversified. The forest sector is an important source of employment and income in the TSA; other important sources are mining, tourism, manufacturing and the public sector. The economy of the City of Kamloops dominates the TSA, with an extensive local economy based on trade, administration, services and manufacturing.

Process for determining an AAC increase for the mountain pine beetle infestation and the 2003 wildfires

The last AAC determination for the Kamloops TSA was set at 2,682,770 cubic metres, effective on January 1, 2003. During this determination, I considered all the factors as required under the *Forest Act* - section 8. Since then, staff indicate the only new and significant information that has changed is the mountain pine beetle infestation and wildfires, in terms of factors affecting the timber supply as projected in the 2001 timber supply analysis. As part of the last determination, I noted that significant portions of harvest operations were directed at mountain pine beetle control, and that the infestation was manageable within the AAC level. Since then, the district staff have continued to monitor the beetle population and have recently found that the beetle population has been increasing beyond that which can be managed within the current AAC.

As recently announced by government, the province must work to slow and contain the spread of the infestation. At present in the Kamloops TSA, it is still possible that increased suppression efforts focussed at the infestation could reduce the spread of the infestation.

The catastrophic forest fires during the summer of 2003 affected a significant amount of timber in the Kamloops TSA. The current harvesting priority in the TSA continues to be aimed at controlling the spread of the mountain pine beetle infestation. Therefore to ensure that the fire-damaged timber is utilized before it deteriorates in value and to encourage successful reforestation of these burned areas,

the district has requested that the AAC for the Kamloops TSA be temporarily increased. As well, to increase efforts to reduce the mountain pine beetle infestation they have requested a further increase in response to the growing epidemic.

The details of the request for a temporary AAC increase are:

- 1) For the salvage of fire-damaged timber - up to 670,000 cubic metres a year for about the next three years; and
- 2) For the control and salvage of mountain pine beetle infestations - up to 1 million cubic metres a year for about the next three years.

At present, and to the extent possible, harvesting activities are aimed at managing the current mountain pine beetle infestation. If harvesting is not increased in the short term to manage the mountain pine beetle infestation and the salvage of fire losses, much of the damaged timber will ultimately deteriorate and no longer be suitable for lumber manufacturing. Without higher harvest levels, the total timber losses due to the mountain pine beetles and fires could be significant.

In response to these observations, I directed staff to conduct a timber supply assessment incorporating the new information about the pine beetle infestation and the 2003 wildfires. An assessment of the timber supply that considers a higher harvesting level for the pine beetle infestation and for wildfires in the TSA has now been completed and is discussed below. I believe that the combination of these catastrophic events has created an urgent need to address the harvest level and associated forest management concerns.

Over the past several years, I have reviewed a number of similar requests for temporary AAC increases. In general, there has been a great deal of understanding that catastrophic events such as the pine beetle infestations and large wildfires have already predetermined their impact to timber supply. Under normal circumstances in the interest of a fair and open process, the analysis would be prepared and released for public review prior to determining a temporary AAC increase. This process can take at least 4 to 6 months. However, given the nature of these events, I have determined that immediate action is required. For the Kamloops TSA, my determination of a temporary AAC increase simply reflects the need to manage these two extraordinary circumstances by immediately increasing the harvest level.

Two catastrophic events

1. Firestorm 2003

Over the past three consecutive years, drought conditions have persisted in BC's interior. By the spring and summer of 2003, drought codes leading up to the 2003 summer fires were twice as high as the previous 10-year average. (*The ten-year average drought code for Kamloops was 425 and for 2003 it was 960.*) The extended hot and dry weather led to one of the worst fire seasons on record, with extraordinary fire risks and extreme fire behaviour.

In the Kamloops area, the first major fire started on July 30, 2003 near McLure. Within the following weeks, four more large forest fires (McGillivray, Venables Valley, Vermillion Creek and Strawberry Hill) were burning. As well, there were a number of smaller wildfires in the Clearwater area. The extended drought, large expanse of heavy forest fuels, and extreme fire weather conditions caused the wildfires to spread rapidly. In total, the 5 major fires covered approximately 56,200 hectares. In addition, about 37,000 hectares of tenured range land, 2,400 hectares of leased grasslands, as well private and Indian reserve lands were burned.

The **Firestorm 2003** emergency has had significant impacts on communities such as Barriere and Louis Creek north of Kamloops. Many people were evacuated from their homes, and many homes and businesses were destroyed. As a result, there are a number of social, economic and environmental values that have been impacted by the forest fires this past summer.

The five largest wildfires burned important habitats such as mule deer ranges, and in some cases burned down to creek sides and affected riparian areas. In other cases, due to the loss of forest cover, hydrological processes and aquatic habitats may be affected. As these types of forest fires are natural disturbance events, vegetation succession will result in the establishment of new forests over time and any areas that are harvested will be promptly reforested. Nonetheless, as the fires have already created disturbances, any further disturbances such as timber harvesting and rehabilitation efforts will need to be sensitive to minimize further impacts to the environment. I understand that less than half of the area burned within the timber harvesting land base is proposed for harvesting and that rehabilitation will be completed in a manner that minimizes its impact.

Based on final mapping of the fire boundaries, about one half of the area burned (26,900 hectares) is located on the timber harvesting land base — land that is considered available for harvesting taking into account economic, environmental, social and cultural considerations. The volume of merchantable timber on the timber harvesting land base that was either damaged or destroyed by the fires has been estimated to be about 5.1 million cubic metres. The area and associated merchantable timber volume is considered to fully contribute to the current AAC. Of the 5.1 million cubic metres of timber burned, staff estimate that about two million cubic metres could be harvested as soon as possible. The opportunity to harvest this timber for sawlogs, most of which is Douglas-fir, will substantially decline within the next two to three years as merchantability declines.

In order to assess the potential impact of the 2003 fires and the on-going pine beetle infestation on the short- to long-term timber supply for the Kamloops TSA, an expedited timber supply assessment was completed. The benchmark for assessing the timber supply and the request for a temporary AAC increase was in the information contained in the *2001 Kamloops Timber Supply Area Analysis Report*.

As Figure 1 shows, based on the *2001 Kamloops Timber Supply Area Analysis Report* and the current AAC, the impacts from the wildfires were examined. The harvest level for the mountain pine beetles is also shown and is discussed below. For wildfires, the timber supply assessment reflects the district's estimate that of the 5.1 million cubic metres of fire-damaged volume, over the next three years about two million cubic metres will be salvaged. The figure also shows that about three million cubic metres will not be salvaged during this period, as represented by the shaded area. The timber supply assessment confirms that the 2003 wildfire damage combined with the increased pine beetle management will not reduce the short-term timber supply; however in about 80 to 100 years, harvest levels will be impacted by the growing stock deficiency, which totals about eight million cubic metres. In the long term, the steady harvest level is projected to be the same as shown in the 2001 analysis report.

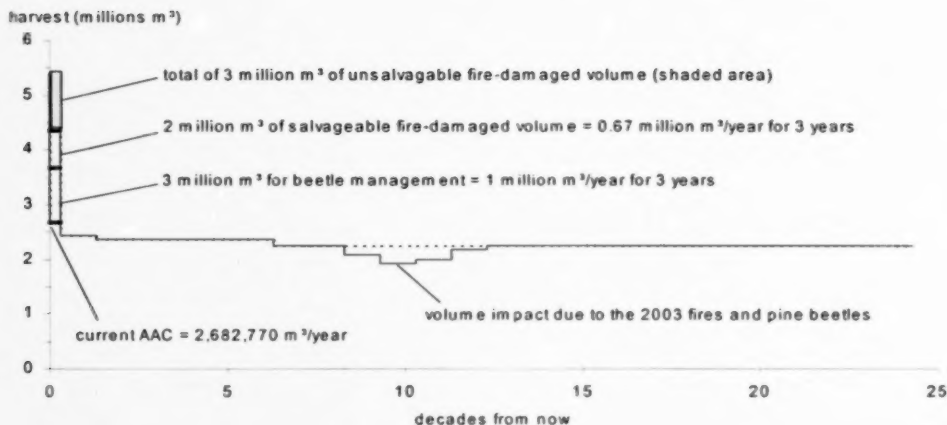


Figure 1. Timber supply impacts from increasing the harvest level for three years to address fire-damaged timber and to manage the mountain pine beetle infestation. 2003

The length of time that fire-damaged timber will be available for harvest will depend on many factors. The timber will have uses that range from sawlogs, building logs, pulp fibre, to alternative forest products. (Merchantability or shelf life is discussed further under mountain pine beetles.) Staff estimate that after about three years fire-damaged timber will become economically unsuitable for sawlog manufacturing.

As all available harvesting is currently focussed on controlling the spread of the mountain pine beetle infestation, the Ministry of Forests staff have requested a harvest level increase to reflect the estimated volume of fire-damaged timber that could be harvested before its value declines substantially. Salvaging the timber will also lead to prompt reforestation of a significant portion of good and medium productivity areas within the TSA. Staff acknowledge that about three million cubic metres of the damaged or destroyed timber is expected not to be harvested due to environmental or economic reasons.

Based on my review of the data and discussions with staff, I have determined that it is appropriate and necessary to increase the AAC by establishing a temporary partition of 670,000 cubic metres for the next three years as part of the strategy to harvest fire-damaged timber.

2. Mountain pine beetles

The mountain pine beetle (MPB), *Dendroctonus ponderosae* Hopkins (Coleoptera: Scolytidae), is the most damaging insect attacking lodgepole pine forests in BC. The most susceptible pine forests are largely comprised of even-aged lodgepole pine trees older than 80 years. For details on the biology of the pine beetle, please check: www.for.gov.bc.ca/hfp/bark_beetles/

As noted in a recent report, *Timber Supply and the Mountain Pine Beetle Infestation in BC 2003*, mountain pine beetles exist naturally in mature lodgepole pine forests, at various population levels depending on pine availability and weather conditions. They play an important role in the natural life cycle of these forests by attacking older or weakened trees, which are then replaced by younger, healthy forests.

Once pine trees are killed they are still merchantable for a number of years; this period of merchantability is sometimes referred to as the shelf life. (Shelf life is the estimated length of time that standing killed timber will retain merchantability based on today's markets and demands.) The exact number of years is highly variable depending on the existing condition of the affected tree, the growing site, and the product potential of the timber (i.e. – first few years as sawlogs, then building logs or pulp fibre, and finally alternative products). Research is currently underway to refine estimates of the merchantable life span of beetle-attacked pine and to investigate the potential to produce alternative wood products from beetle-killed timber. Findings could help to focus harvesting where deterioration rates are expected to be more rapid and to expand the harvesting potential.

Over the past several years in the Kamloops TSA, the mountain pine beetle infestation has been located in two main areas. One is the area extending from Darfield through Louis Creek to Martin Mountain and the other area is from Criss Creek to Red Plateau and Opax Mountain. The Ministry of Forests and the forest industry have been actively trying to control and manage the mountain pine beetle infestation in the TSA. Licensees have been dedicating a significant portion of their harvest to management efforts aimed at the infestation. In addition, provisions under the *Forest Act* allow harvesting to be redirected from other management units. The infestation in the Kamloops TSA was recognized as severe enough to warrant this type of redirection. Last year, about 300,000 cubic metres from the Okanagan TSA and some from the Clearwater area were redirected to harvest in the Kamloops district. Most of this volume now has been harvested. Despite the above-noted measures the infestation continues to increase.

As shown in Table 1, the 2003 aerial overview surveys for the Kamloops TSA resulted in classifying about 35,000 hectares as red-attacked. (Red-attacked trees are those that were attacked and killed in the previous year.) Since the 2002 surveys, this area represents a significant increase in the area covered by red-attacked trees. On average, the annual expansion of the infestation from 2000 to 2003 has been about 200 percent. This has resulted in considerable concern that current harvest levels and management strategies for the pine beetle will not be adequate to reduce the spread of the infestation.

Table 1. Hectares of annual red-attack for Kamloops – on the forested landbase and includes all ownerships except parks

Hectares of annual red-attack by intensity for Kamloops TSA				
Intensity	2000	2001	2002	2003
Light (1 – 10% dead)	3729	5244	9191	19245
Moderate (11 – 29 % dead)	1314	3230	5335	9967
Severe (over 30% dead)	142	1678	2725	5786
Totals	5,185	10,130	17,251	34,998

Source: Summary of BCFS annual aerial overview surveys, Forest Practices Branch, 2003

It is important to note that the 2003 overview surveys captured only the visible red-attacked trees that resulted from the 2002 beetle flight. Initial ground reconnaissance indicates that substantial additional spread has resulted from the 2003 beetle flight and that some populations have dispersed to new susceptible pine stands. The area attacked during the 2003 summer will not be visible as red-attacked trees until fall 2004.

The increase in the number and area of red attacks reported in the 2003 aerial overview surveys has caused considerable concern for forest management in the Kamloops TSA. Ground surveys were conducted to evaluate the level of new 2003 green attack (recently attacked) in select drainages in the

Kamloops TSA. The level of green attack varied between areas, but on average, the expansion rate of green attack was found to be greater than previous years, meaning that next year's red attack could increase by more than 200 percent.

As reported in the *2001 Kamloops Timber Supply Area Analysis Report*, leading lodgepole pine forests comprise about 30.7 percent of the timber harvesting land base. Of this area, about 62% or about 200,000 hectares are mature pine-leading stands (greater than 50 percent pine older than 80 years), as well as 191,000 hectares of mixed forests with a component of mature pine. In total, mature lodgepole pine trees represent a significant merchantable volume - about 54 million cubic metres of mature pine in stands with more than 50 percent pine and older than 80 years - at risk from the infestation.

At the current rate of expansion, in the next one to three years, many of the mature pine-leading forests on the timber harvesting land base could be infested to varying intensities (see Table 1 for the definition of the three intensity levels). At present, district staff estimate about 2.5 million cubic metres of merchantable lodgepole pine have been infested. The current rate of harvesting pine — over 1.0 million cubic metres per year — in the Kamloops district is insufficient to keep up to the infestation; therefore additional harvesting is required to ensure timely salvage of beetle-killed wood (red and gray) in conjunction with harvesting green-attacked wood to manage the spread of the infestation.

I have reviewed the timber supply assessment as shown above in Figure 1. In addition to this assessment, staff indicate that if the infestation continues unabated and all of the pine is infested in the next one to three years, the harvest level could decline by up to 16 percent within 20 years compared to the forecast shown in Figure 1. Given the significant risk that the infestation represents and that the existing licensees in the Kamloops district are placing their harvesting priority on the mountain pine beetle infestation, I believe it appropriate to increase the AAC by establishing a temporary partition of one million cubic metres for about the next three years as part of the strategy to control the infestation. The majority of this partition volume should be directed to the Kamloops district to mitigate the MPB timber supply implications in the southern half of the Kamloops TSA.

The primary objective of this temporary partition is to control the spread of the MPB especially in new infested areas with a high component of susceptible pine and along the leading-edge of the infestation for a long enough period to reduce the beetle population to more manageable levels. Notwithstanding this objective, I recognize that some incidental harvest of non-infested trees will be required to access and harvest the infested timber in a safe and operationally feasible manner. The harvest of non-infested trees should also be kept to a minimum to ensure that environmental values are not unduly compromised or put at risk, and also to ensure that the increased harvesting is deployed in a manner that has the maximum possible impact on the infestation. I trust that district managers will give due consideration to these matters when reviewing and approving forest development plans and cutting authorities for all licences issued for this partition. Management strategies must also be designed and applied in a way that protects the ecological integrity of the area.

Given the catastrophic nature of this epidemic, I expect that the majority of volume already committed to licenses and allocated to BC Timber Sales should also be directed at controlling and salvaging MPB-attacked trees.

I recognize there are a number of uncertainties associated with this decision. Success in using an AAC increase to control the spread of the MPB is dependent on a number of factors — including adequate resources at the district level, successful issuance of new tenures, suitable market access and prices, and availability of adequate milling capacity — all of which cannot be guaranteed. As well, there are a number of uncertainties associated with the infestation, in particular the rate of expansion of the MPB

population and the length of time MPB-attacked trees will remain merchantable in the Kamloops TSA. Ultimately however, the ability to manage the infestation should not be limited by the level of the current AAC, therefore increasing the AAC should provide more flexibility to increase management efforts. Subsequently, if during the term of this temporary AAC increase new information about the assumptions used in this determination becomes available, I will be prepared to revisit this decision.

Determination

In accordance with the *Forest Act* section 8, and placing extraordinary emphasis on section (8) (e), which provides the expectation that in determining an AAC I must consider abnormal infestations in and devastation of, and major salvage programs planned for, timber on the area, I have considered and reviewed the known factors as documented above. In addition, I have fully considered the need to make this decision in a timely manner and did weigh alternative approaches. However in the end, I was persuaded by the need for an immediate decision in order that the province could consider the issuance of new licences in a timely enough manner to meet the forest health and salvage objectives for the Kamloops TSA.

It is my determination that a harvest level for the next three years that reflects appropriate management strategies in response to the 2003 wildfires and mountain pine infestation, can best be achieved in the Kamloops TSA by establishing an AAC of 4,352,770 cubic metres per year, effective January 1, 2004.

The AAC is partitioned as previously determined as follows:

- a conventional harvest level of 2,361,900 cubic metres,
- a cedar/hemlock harvest level of 200,000 cubic metres,
- a Pulpwood Agreement (PA) 16 harvest level of 86,000 cubic metres per year, and for deciduous stands outside the current boundary of PA 16 a partition of 20,000 cubic metres per year, and
- for innovative practices and activities within the Adams Lake IFPA area, a harvest level of 14,870 cubic metres per year.

This new AAC also includes partitioned harvest levels as follows:

- 670,000 cubic metres to salvage fire-damaged timber, and
- 1,000,000 cubic metres to reduce the spread and losses from the mountain pine beetle infestation.

If additional significant new information is made available to me, or major changes occur in the assumptions upon which I have predicated this decision, then I am prepared to revisit this determination sooner than three years.

This determination will remain in effect until a new AAC is determined under the provisions of the *Forest Act*.



Larry Pedersen
Chief Forester
December 16, 2003